

Titles

Amateur's Solar Observations, An. *Walter J. Semerau*, 679

American Astronomers Report—
 Abundance Differences Among Supergiants, 255
 Alpha Centauri System, The, 380
 American Astronomical Society group photograph, 253
 Andromedids Recovered, 383
 Artificial Meteor Observations, 440
 Astronomical Uses for Artificial Satellites, 252
 Cascaded Image Converters, 255
 Cepheids in the Galaxy, 314
 Coma Cluster of Galaxies, 495
 Comets and Cosmic Chemistry, 557
 Faint Variable Stars in Galactic Nebulae, 313
 Far-Ultraviolet Solar Spectrum, 496
 High-Altitude Meteoritic Dust, 20
 Large Planetary in Norma, 315
 Lithium in K Stars, 493
 Martian Vegetation, 252; correction, 369
 Observations of Solar Magnetic Fields, 557
 Orbital Motion of Griqua, 313
 Orion Nebula's Composition, 381
 Radio Studies of Jupiter, 380
 Solar Photographs in Lyman-Alpha Light, 440
 Solar Radio Bursts, 556
 Spectra of Supernovae of Type I, 495
 Spectrum of Jupiter, 538
 Spectrum of R. Cygni, The, 382
 Unusual Reflection Nebula and the Star AE Aurigae, An, 20
 UV Ceti, 440
 VV Puppis, 493

Among Southern Galaxies, X, 26

April's Annular Eclipse in Australia, *B. J. Harris*, 438

Aurora Observations in Antarctica, 138

Australia's 210-foot Radio Telescope Project, *Frank J. Kerr*, 666

Boston's Planetarium Opens, *John Patterson*, 13

Cateye, The, *R. K. H. Gebel* and *Lloyd R. Wylie*, 84

Chemical Composition and Ages of Stars, The, *Otto Struve*, 17; correction, 255

Classifying the Galaxies, *Otto Struve*, 125

Convention in Denver, 660

Darwin, Charles, and the Problem of Stellar Evolution, *Otto Struve*, 240

Eclipse of the sun of October 12, 1958—
 Eclipse Observations on October 12th, 68
 Eclipse Photographs from the South Pacific, 316; correction, 500

Eclipse of the sun of October 2, 1959 (see also under Departments, Observer's Page)—
 Next Total Solar Eclipse, The, 200
 Observing Sites for October's Eclipse, *Robert E. Cox*, 306
 Photographing the Horizon Eclipse, 502

Experiment on Penumbral Lunar Eclipses, An, *Shigetugu Fujinami* and *Yashuhiro Yamasaki*, 620

Finding the Age of the Earth, *Otto Struve*, 433; correction, 500

Fitz's, Henry, Optical Workshop, 659

Flare Stars, *Otto Struve*, 612

Former Lick Director Dies, 500

Graphic Time Table of the Heavens—1959, 149, 150-151

Indirect Detection of Solar Flares, *Philip J. Del Vecchio*, 546

Jai Singh and His Observatory at New Delhi, *K. M. Talgeri*, 70

Kitt Peak Observatory's 84-inch Mirror Cast, 318

Largest American Solar Furnace, The, 4

Lehigh Valley Planetarium Project, *Joseph F. Grady*, 430

Lunar and Planetary Meetings, 299

Making of the Barringer Meteorite Crater, The, *Otto Struve*, 187

Mars Observations at the Pic du Midi, *Henri Camichel*, 600

Meteoritic Satellite of the Earth? 599

Minor Planet Survey, 363

Model of Jupiter's Satellite Orbits, A, *Owen Gingerich*, 376

Moon Photographs with an Off-Axis Reflector, 63; correction, 255

New American Ephemeris, The, 239

New Brookhaven Accelerator, 446

New Experiments on the Moon Illusion, 668

New Galactic Co-ordinates, 383

New IAU Nomenclature for Mars, The, *Joseph Ashbrook*, 23

New Observatory in Japan, A, *Masaki Miyadi*, 605

New S & T Headquarters, 543

Nonterrestrial Dust on the Earth, *E. L. Krinov*, 617

Nova Herculis as a Binary System, *Otto Struve*, 497; correction, 665

Observation of a Volcanic Process on the Moon, *Nikolai A. Kozyrev*, 184

Observations of Mars in 1958, *Gerard de Vaucouleurs*, 484

Occultation of Regulus by Venus in July, The, *Gerard de Vaucouleurs*, 606

Occultation of Regulus by Venus This Month, 483

Orbits of Visual Double Stars, *Otto Struve*, September, 1958; correction, 19; addition, 255

Origin of the Ancient Constellations, The, *George A. Davis*, 424

Planetarium Operators' Symposium at Cranbrook Institute, 80

Planetarium Representatives Attend International Conference, 503

Planet Notes from Moscow, *Joseph Ashbrook*, 258

Radar Echoes from Venus, 384

Radio Observatories of the World, *George S. Mumford, III*, 300

Radio Resolution of the Galactic Nucleus, *Frank D. Drake*, 428

Rocket Propellants—The Key to Space Travel, *Frederick I. Ordway, III*, I, 190; II, 245; correction, 317

Solar Flare of May 10, 1959, The, 544

Solar Research Reported at Moscow, *Orren C. Mohler*, 77

Solar Tower Telescope Planned for Kitt Peak, 183

Some Astronomical Stamps, *Alphonse P. Mayer-nik*, I, 140; II, 198; III, 256; IV, 322; V, 386; VI, 442

Some Perseid Meteor Spectra of the Past Decade, *John A. Russell*, 549

Some Possible Evidence of Evolution in Individual Stars, *Otto Struve*, 74

Some Radio Telescopes, I, 302; II, 370

Some Suggestions on Astrophotography, *George T. Keene*, 134

Spiral Structure of the Milky Way, The, *Otto Struve*, 364

Stellar Motions, *Otto Struve*, 669

Story of AG Pegasi, The, *Paul W. Merrill*, 490

Submarine and Space Medicine Symposium, *Howard Laskey*, 3

Variable Stars, *Otto Struve*, 309

Variable Stars Today, 63

Volcanic Activity on the Moon? *Joseph Ashbrook*, 123

World's Astronomers Meet in Moscow, *Bart J. Bok*, 7; correction, 317

World-wide Observations of VV Cephei, *Laurence W. Fredrick*, 132

YY Geminorum, *Otto Struve*, 552

Authors

Andrews, E. J., Amateur Meets Amateur, 563

Ashbrook, Joseph, Astronomical Scrapbook, 85, 203, 312, 427, 559, 664
 book reviews, 102, 277, 402
 New IAU Nomenclature for Mars, The, 23
 Planet Notes from Moscow, 258
 Volcanic Activity on the Moon? 123

Ashbrook, Martha, book reviews, 343, 521

Bok, Bart J., World's Astronomers Meet in Moscow, 7; correction, 317

Bondy, Harry L., book review, 461

C. A. F., see *Federer, Charles A., Jr.*

Camichel, Henri, Mars Observations at the Pic du Midi, 600

Capen, Charles F., Jr., Mars Drawings Using Filters, 95
 Some Observations of Mars from Iran, 209

Cave, Thomas R., Jr., Early Observations of Mars, 30

Charles, Donald F., Moonwatch Meeting in California, 324

Cheney, William, Low-Cost Furnace To Melt Metal for Castings, A, I, 465; II, 526

Cokor, John, Suggestions for Mirror Makers, 110

Cole, Mrs. Lorena M., letter, 137

Coutchie, Ray G., Drawing the Moon's Surface, 450

Cox, Robert E., Balancing a German Equatorial Mounting, 107
 Balancing the Tube of a Reflecting Telescope, 47
 book review, 161
 conductor, Gleanings for ATM's, 47, 107, 166, 222, 282, 348, 406, 465, 526, 582, 643, 703

Maksutov Telescope Notes, 285

Microscope Objectives for Radius Testing, 706

Newtonian Focus Position and Parfocal Eyepieces, October, 1958; correction, 50

Observing Sites for October's Eclipse, 306

Suggestions for Designing the Null Tester, 225

Crull, Harry E., book review, 216

Dahl, Carl E., 4-inch Gregory-Maksutov Telescope, A, 282

- Davey, William, Roll-off Roof Observatory for a 12½-inch Reflector, A, 352
- Davis, George A., Origin of the Ancient Constellations, The, 424
- Del Vecchio, Philip J., Indirect Detection of Solar Flares, 546
- de Vaucouleurs, Gerard, letter, 201
- Observations of Mars in 1958, 484
- Occultation of Regulus by Venus in July, The, 606
- Drake, Frank D., Radio Resolution of the Galactic Nucleus, 428
- Duncan, John C., letter, 423
- Eastman, Jack, Lunar and Planetary Photography with a 12½-inch Reflector, 510
- Engelkemeir, Donald, Algol Observations, 412
- Everhart, Edgar, Penta-Prism Diagonal for Finder Scopes, 588
- Federer, Charles A., Jr., book reviews, 160, 459
- Feibelman, Walter A., Sunset Phenomena, 573
- Fredrick, Laurence W., World-wide Observations of VV Cephei, 132
- Fujinami, Shigetsugu, and Yamasaki, Yasuhiro, Experiment on Penumbral Lunar Eclipses, An, 620
- Ganser, Mrs. Mary H., letter, 137
- Gasteyer, Charles, book review, 577
- Gebel, R. K. H. and Wylie, Lloyd R., Cateye, The, 84
- Gingerich, Owen, Model of Jupiter's Satellite Orbits, A, 376
- Glenn, William H., Meteors, 54, 113, 172, 355, 412, 534, 590, 710
- Observations Wanted of Moon's Shadow, 628
- Sun, Moon, and Planets This Month, The, 55, 113, 173, 231, 291, 355, 413, 475, 535, 591, 651, 711
- Goetz, Robert, Complete Observatory of Relatively Low Cost, A, 204
- Gold, Leon E., book review, 40
- Grady, Joseph F., Lehigh Valley Planetarium Project, 430
- Harris, B. J., April's Annular Eclipse in Australia, 438
- Harris, David, Troy Amateurs Reorganize, 16
- Hernandez, Jose, North-Central Convention, 507
- Herring, Alike K., Observing the Moon, Cassini, 515; Davy Y, 334; Gassendi, 206
- Hopf, John T., Geminid Meteor Photographs, 268
- Houston, Walter Scott, Deep-Sky Wonders, 35, 155, 210, 269, 332, 393 (correction, 503), 454, 630, 694
- Irwin, John B., book reviews, 214, 399, 637
- J. A., see Ashbrook, Joseph
- Jones, L. A., Simplified "Schmidt" Camera for Amateurs, A, 703
- Kada, Gene, Fieldston School Observatory, The, 166
- Keene, George T., Some Suggestions on Astrophotography, 134
- Kerr, Frank J., Australia's 210-foot Radio Telescope Project, 666
- Ketchum, Jesse, Toronto, Canada, 251
- Knuijt, Jerome J., Large Amateur Observatory of Unusual Design, A, 406
- Kozyrev, Nikolai A., letter, 561
- Observation of a Volcanic Process on the Moon, 184
- Krinov, E. L., Nonterrestrial Dust on the Earth, 617
- Kuiper, Gerard P., letter, 307
- Kutter, Anton, Testing Long-Focus Convex Spherical Secondary Mirrors, 348
- Laskey, Howard, Submarine and Space Medicine Symposium, 3
- Lattey, Mrs. Hedi E., Amateur Astronomer's Wife, An (poem), 87
- Lautman, Don A., book review, 579
- Leonard, Arthur S., book review, 519; correction, 699
- Lilge, A. W., Herschel Telescope for Lunar and Planetary Observing, A, 582
- Lindsay, Lewis, Sketching a Sunrise Eclipse, 391
- Lundstrom, Robert A., Amateur's Experience with Public Star Parties, An, 87
- Lutz, Samuel, 12½-inch Fork-Mounted Newtonian-Cassegrainian, A, 169
- Marion, Walter C., book review, 640
- Mathews, Robert T., book review, 338
- Mayall, Mrs. Margaret W., Peculiar Variable Star V Sagittae, The, 632
- Mayall, R. Newton, AAVSO Meets in Chicago, 562
- Mayernik, Alphonse P., Some Astronomical Stamps, I, 140; II, 198; III, 256; IV, 322; V, 386; VI, 442
- McKinley, D. W. R., book review, 577
- Melin, Marshall, Observing the Satellites, 28, 82, 145, 196, 260, 319, 378, 444, 504, 560, 615, 673
- Merrill, Paul W., Story of AG Pegasi, The, 490
- Miller, Franklin, Jr., Naked-Eye Method for Finding Venus by Day, A, 687
- Miyadi, Masasi, New Observatory in Japan, A, 605
- Mohler, Orren C., Solar Research Reported at Moscow, 77
- Moore, James G., Photometric Observations of Satellite 195881, 83
- Moore, Patrick, Lunar Domes, 91
- Mumford, George S., III, book review, 99
- Radio Observatories of the World, 300
- Muta, Taizo, Juniors in Japan, 16
- Newman, Edward J., book review, 40
- Northwest Convention, 680
- Oliver, Everett S., Amateur Photographs of Mars, 36
- Ordway, Frederick I., III, Rocket Propellants—The Key to Space Travel, I, 190; II, 244; correction, 317
- Page, Thornton, book review, 341
- Parker, P. O., Southeast Convention, 506
- Parmenter, B. C., Making Long-Focus Mirrors, 583
- Patterson, John, Boston's Planetarium Opens, 13
- Paulton, Edgar M., Observing and Reporting Shadow Bands, 627
- Pfleumer, Hans, Photographs of Venus, 268
- Pocock, Bryant W., Epoxy Resin — A Cement for Ceramic-Tile Tools, 705
- R. E. C., see Cox, Robert E.
- Ramsey, Clifford R., Mars Observing Program, 143
- Roach, F. E., book review, 698
- Rush, J. H., book reviews, 39, 273
- Russell, John A., Some Perseid Meteor Spectra of the Past Decade, 549
- Sangster, Ralph L., letter, 423
- Schlauch, John, Construction of a Dall Null Tester, 222
- Selby, H. H., book review, 100
- Semeran, Walter J., Amateur's Solar Observations, An, 679
- Heavy-duty Mounting with Friction Control, A, 643
- Severin, Marcos A., Photography of the Milky Way, 693
- Shawcross, William E., AAVSO Meets in Springfield, 87
- book review, 274
- Questions from the S+T Mailbag, 22, 88, 145, 189, 251, 321, 385, 439, 507, 554, 621, 665
- Sloan, Martin A., Escondido, California, 681
- Smith, Gordon W., Amateur Observatory in Canada, An, 88
- Smith, J. Russell, New 16-inch Telescope in Texas, A, 431
- Stein, Raymond J., book review, 578
- Unusual Event in Alpetragius, An, 211
- Steinmetz, Ken, Amateur Convention To Tour Air Force Academy, 250
- Many Amateurs Register for National Meeting, 388
- Nationwide Amateur Astronomers Convention, 142
- Notes on the Denver Meeting, 432
- Sternig, John, book review, 458
- Streeter, John W., book review, 43
- Strittmatter, Donald J., Tucson Amateurs Visit Kitt Peak Observatory, 680
- Struve, Otto, Chemical Composition and Ages of Stars, The, 17; correction, 255
- Classifying the Galaxies, 125
- Darwin, Charles, and the Problem of Stellar Evolution, 240
- Finding the Age of the Earth, 433; correction, 500
- Flare Stars, 612
- Making of the Barringer Meteorite Crater, The, 187
- Nova Herculis as a Binary System, 497; correction, 665
- Orbits of Visual Double Stars, September, 1958; correction, 19; addition, 255
- Some Possible Evidence of Evolution in Individual Stars, 74
- Spiral Structure of the Milky Way, The, 364
- Stellar Motions, 669
- Variable Stars, 309
- YY Geminorum, 552
- Swinburn, W. M., New Zealand Amateurs Erect Planetarium, 506
- Talgeri, K. M., Jai Singh and His Observatory at New Delhi, 70
- Thompson, Steadman, book review, 698
- Tousey, R., letter, 489
- Volcheck, Emil, Jr., Middle East Convention, 563
- W. E. S., see Shawcross, William E.
- W. H. G., see Glenn, William H.
- Walley, Paul C., Amateur Observatory in Honolulu, Hawaii, An, 324
- Williamson, Jo, Mid-States Convention, 622
- Wyatt, Stanley P., Jr., book reviews, 457, 697
- Wylie, Lloyd R., see Gebel, R. K. H.
- Yamasaki, Yasuhiro, see Fujinami, Shigetsugu
- Youdale, Jack, Grinding a Maksutov Lens, 350
- Young, Andrew T., Wanted: Amateur Observations of CE Cassiopeiae, 152
- Zwicky, F., letter, 201

Special Supplement

Man's Farthest Step Into Space

- November, center
- Pioneer Research Program
- Lunar Probe Launching Times, Marshall
- Melin
- Launching of Pioneer, The, Marshall
- Melin
- Amateur Observations of Pioneer
- Payload Instrumentation
- Sterile Lunar Probes
- Tracking the Probe

Departments and Features

Amateur Astronomers—

AAVSO Meets in Springfield, 87
 AAVSO Spring Meeting, 432; AAVSO Meets in Chicago, 562
 Amarillo, Texas, 564
 Amateur Astronomer's Wife, An (poem), 87
 Amateur Meets Amateur, 563
 Amateur Observations of Comets, 622
 Amateur Observatory in Canada, An, 88
 Amateur Observatory in Honolulu, Hawaii, An, 324
 Amateur's Experience with Public Star Parties, An, 87
 Babylon, New York, 564
 Beacon, New York, 564
 Bethpage, New York, 205
 Birmingham, Alabama, 142
 Brainin, Clement S., Dies, 622
 Brentwood, Tennessee, 205
 Bristol, Pennsylvania, 16
 Burbank, California, 324
 Chicago Junior Publication, 432
 China Lake, California, 205
 Clearfield, Pennsylvania, 142
 Clinton, Wisconsin, 16
 Colorado Amateurs To Instruct Girl Scouts, 507
 Complete Observatory of Relatively Low Cost, A, 204
 Contacting National Organizations, 251
 Dellar, Robert H., 623
 Dubuque, Iowa, 251
 Erie, Pennsylvania, 623
 Escondido, California, 681
 First Amateur Observatory in California, 431
 Ft. Dodge, Iowa, 16
 Ft. Wayne, Indiana, 16
 Georgia Amateur Dies, 205
 Goodwin, Frank L., Dies, 668
 Great Lakes Convention, 432
 International Lunar Society, 251
 Juniors in Florida and Missouri, 142
 Juniors in Japan, 16
 Juniors in Oregon, Missouri, and Kentucky, 562
 Kankakee, Illinois, 205
 Knoxville, Tennessee, 16
 Las Vegas, Nevada, 16
 Latin-American Amateurs Organize League, 205
 Latin-American Bulletin, 681
 Laurel, Mississippi, 205
 Lexington, Kentucky, 388
 Los Angeles Star Parties, 432
 Manchester, New Hampshire, 251
 Mars Observing Program, 143
 Memphis, Tennessee, 681
 Middle East Convention, 325, 563
 Mid-States Convention, 324, 622
 Montreal, Canada, 680
 Moonwatch Meeting in California, 324
 Nationwide Amateur Astronomers Convention, 142; National Meeting Notes, 204; Amateur Convention To Tour Air Force Academy, 250; Cost of Field Trips at Denver Convention, 324; Many Amateurs Register for National Meeting, 388; Notes on the Denver Meeting, 432; Program of the Denver Convention, 562
 New ALPO Address, 563
 New Jersey Star Parties, 507
 New Junior Groups in Florida and Minnesota, 681
 New Planetarium in Tennessee, 205
 New 16-inch Telescope in Texas, A, 431
 New York Juniors, 16
 New Zealand Amateurs Erect Planetarium, 506

North Carolina Amateur Dies, 324
 North-Central Convention, 250, 507
 Northeast Convention, 623
 N. Hollywood, California, 562
 Northwest Convention, 432, 680
 Observatory-Planetarium in Idaho, An, 143
 Oklahoma City, Oklahoma, 88
 Pontchartrain, Louisiana, 324
 Public Observatory in Connecticut, A, 622
 Quincy, Massachusetts, 325
 Rockford, Illinois, 564
 San Gabriel, California, 205
 Scranton, Pennsylvania, 564
 Southeast Convention, 250, 506
 Stamford, Connecticut, 16
 State College, Pennsylvania, 324
 Stellafane Meeting, 507; Stellafane in 1959, 680
 Stoughton, Wisconsin, 623
 This Month's Meetings, 16, 87, 142, 205, 251, 325, 388, 431, 623, 680
 Toronto, Canada, 251
 Troy Amateurs Reorganize, 16
 Tucson Amateurs Visit Kitt Peak Observatory, 680
 Union City, New Jersey, 205
 Upper Montclair, New Jersey, 16
 Valparaiso, Indiana, 324
 Vienna, West Virginia, 251
 Watertown, Wisconsin, 88
 Wenatchee, Washington, 205

Astronomical Scrapbook—

Astronomy in Greenland, 85
 Lassell's 4-foot Telescope, 664
 Names on the Moon, 203
 S Fornacis Puzzle, The, 427
 Some Comet Finds, 312
 Some Huygens Telescopes, 559

Books and the Sky—

Advances in Geophysics, Volume 5, H. E. Landsberg and J. Van Mieghem, editors, 277
 Astronomy, Robert H. Baker, 459
 Black Cloud, The, Fred Hoyle, 43
 Celestial Mechanics, E. Finlay-Freundlich, 402
 Concepts of Classical Optics, John Strong, 100
 Dictionary of Astronomy and Astronautics, Armand Spitz and Frank Gaynor, 579
 Dipper Full of Stars, A, Lou Williams Page, 578
 Exploration of Time, The, R. N. C. Bowen, 274
 Exploring the Distant Stars, Clyde B. Clason, 160
 Face of the Sun, The, H. W. Newton, 461
 Frank's Book of the Telescope, 161
 Frontiers in Science, Edward Hutchings, Jr., editor, 40
 Green Flash and Other Low Sun Phenomena, The, D. J. K. O'Connell, S. J., 457
 Handbook for Observing the Satellites, Neale E. Howard, 519; correction, 699
 Handbuch der Physik, S. Flügge, editor, Vol. 50, Astrophysics I: Stellar Surfaces—Binaries, 214; Vol. 51, Astrophysics II: Stellar Structure, 399; Vol. 52, Astrophysics III: The Solar System, 637
 Isaac Newton's Papers & Letters on Natural Philosophy, I. Bernard Cohen, editor, 102
 L'Exploration des Galaxies Voisines, Gerard de Vaucouleurs, 341
 Man's Conquest of the Stars, Pierre Rousseau, 698
 Moon Trip, William Nephew and Michael Chester, 343

Nine Planets, The, Franklyn M. Branley, 521
 Of Stars and Men, Harlow Shapley, 39
 Physics and Philosophy, Werner Heisenberg, 273
 Physics of Meteor Flight in the Atmosphere, Ernst J. Opik, 577
 Planets, Stars and Space, Joseph Miles Chamberlain and Thomas D. Nicholson, 40
 Sleepwalkers, The, Arthur Koestler, 577
 Soviet Space Science, Ari Shternfeld, 640
 Stellar Populations, D. J. K. O'Connell, S. J., editor, 338
 Structure and Evolution of the Stars, Martin Schwarzschild, 99
 Structure and Evolution of the Universe, The, G. J. Whitrow, 697
 Teaching a Unit in Astronomy: Grades 1-9, J. Russell Smith, 458
 1001 Questions Answered About Astronomy, James S. Pickering, 216
 Upper Atmosphere, The, H. S. W. Massey and R. L. F. Boyd, 698

Celestial Calendar—

Algol Observations, 412
 Ceres and Beta Librae, 172
 Jupiter's Satellites, 230, 290, 355, 412, 474, 534, 590
 Meteors, 54, 113, 172, 355, 412, 534, 590, 710
 Minima of Algol, 54, 112, 172, 230, 290, 355, 412, 474, 534, 591, 650, 711
 Minor Planet Predictions, 54, 112, 172, 230, 290, 354, 413, 474, 534, 591, 651, 710
 Moon Phases and Distance, 55, 112, 172, 231, 290, 354, 412, 474, 535, 590, 650, 711
 Occultation of Neptune, 651
 Occultation Predictions, 112, 172, 230, 290, 354, 413, 474, 535, 650, 710
 Penumbral Eclipse of the Moon, A, 650
 Sun, Moon, and Planets This Month, The, 55, 113, 173, 231, 291, 355, 413, 475, 535, 591, 651, 711
 Variable Star Maxima, 54, 112, 172, 230, 290, 354, 413, 475, 534, 590, 651, 711
 Variable stars: R Cassiopeiae, 534; Delta Cephei, 740; Omicron Ceti, 590; S Ursae Majoris, 475
 Venus To Occult Regulus, 474

Feature pictures—

Messier 33 (NGC 598), 124
 Moon, 8 $\frac{3}{4}$ days old, 64
 Southern galaxy: NGC 1365, 27
 Sun, eruptive prominence of April 11, 1959, 436

Front-cover photographs—

Air Force planetarium, 237
 Amateur's photographic reflector, An, 121
 Anton Kutter's catadioptric telescope, 61
 Atlas satellite rocket, 181
 Caltech's radio telescope, 297
 Lehigh Valley amateurs, 421
 19th-century telescope shop, 657
 Observing solar flares by radio, 541
 Pic du Midi Observatory, 597
 Sunset on the moon, 481
 U. S. Army solar furnace, 1
 Wisconsin amateur and guests, 361

Getting Acquainted with Astronomy—

Techniques of Lunar and Planetary Observing, I, 610
 Time and the Sky, I, 86; II, 144; III, 262; IV, 375 (correction, 503)

Gleanings for ATM's—

- Balancing a German Equatorial Mounting, 107
- Balancing the Tube of a Reflecting Telescope, 47
- Construction of a Dall Null Tester, 222
- Epoxy Resin — A Cement for Ceramic-Tile Tools, 705
- Fieldston School Observatory, The, 166
- Heavy-duty Mounting with Friction Control, A, 643
- Herschelian Telescope for Lunar and Planetary Observing, A, 582
- Large Amateur Observatory of Unusual Design, A, 406
- Low-Cost Furnace To Melt Metal for Castings, A, I, 465; II, 526
- Making Long-Focus Mirrors, 583
- Maksutov telescopes: 4-inch Gregory-Maksutov Telescope, A, 282; Grinding a Maksutov Lens, 350; Maksutov Telescope Notes, 285
- Microscope Objectives for Radius Testing, 706
- Newtonian Focus Position and Parfocal Eyepieces, October, 1958; correction, 50
- Penta-Prism Diagonal for Finder Scopes, 588
- Roll-off Roof Observatory for a 12½-inch Reflector, A, 352
- Simplified "Schmidt" Camera for Amateurs, A, 703
- Suggestions for Designing the Null Tester, 225
- Suggestions for Mirror Makers, 110
- Testing Long-Focus Convex Spherical Secondary Mirrors, 348
- 12½-inch Fork-Mounted Newtonian-Cassegrainian, A, 169

Here and There with Amateurs, 325, 681

In the Current Journals, 22, 73, 131, 195, 249, 308, 369, 437, 501, 555, 615, 676

Letters, 137, 201, 307, 423, 489, 561

New Books Received, 44, 161, 219, 278, 344, 402, 462, 522, 579, 640, 699

News Notes—

- A.S.P. June Meeting, 439
- Airglow of Venus, 368
- Amateur Observations of a Flare Star, 445
- American Astronautical Society Meeting, 369
- American Astronomical Society Meeting, 496
- American Eclipse Plans, 676
- Antireflection Coatings for Infrared Optics, 22
- April Eruptive Prominence Observed in Czechoslovakia, 437
- Argentine Astronomical Association Formed, 146
- Astronomical Exhibition, 203
- Astronomy Magazine Changes Hands, 677
- Catalogue of Solar Flares, 560
- Chinese Astronomer Dies, 249
- Cincinnati Astronomer Dies, 369
- Color Photographs of Deep-Sky Wonders, 437
- Comet Burnham-Slaughter, 22
- Comet Giacobini-Zinner, 614
- Comet 1959a, 308
- Completion of the AGKs, 555
- Cornell Appointment, 439; Cornell To Erect Radar To Observe Venus, 605
- Cosmic Abundances, 614
- Dutch Eclipse Plans, 492
- Early Volumes of *Astrophysical Journal* Reprinted, 249
- Earth's Core Temperature, 501
- Effective Aperture of the Human Eye, 186
- First Reports of Venus-Regulus Occultation, 554
- Fluctuations in Periods of Artificial Satellites, 249

- Forbidden Oxygen Lines in Meteor Spectra, 249
- Further Word on Last October's Eclipse, 131
- Green Bank Dedication, 72
- Heights of Meteors, 131
- Infrared Photography, 72
- Institute of Space Sciences, 72
- International Meeting of Planetarium Executives, 368
- Jackson, John, Dies, 308
- Laboratory Test of Relativity, 195
- Lick Observatory Plans New Sky Atlas, 308
- Lick 120-inch Telescope Nearing Completion, 615
- Lithium in the Upper Atmosphere, 72
- Location of the North Magnetic Dip Pole, 447
- Lowell Composite Photographs Extend Limiting Magnitude, 677
- Lunar Atmosphere and Proton Bombardment, A, 676
- Meteoritical Society Meeting at Harvard, 605
- Miami Planetarium Proposed, 489
- New Canadian Telescope, 73
- New Director at Lowell, 19
- New Observatory Planned for South America, 368
- New Ultraviolet Prism for Case Schmidt, 317
- New Warner and Swasey Director Appointed, 621
- New York Orders Projector, 264
- 1955 Fireball over France, 676
- Nonthermal Radio Noise from Jupiter, 501
- North-South Aurora Correlation, 672
- Nova Chamaeleontis 1953, 368
- Occultations of Regulus by Venus, 672
- Optical Society Meeting, 286
- Peculiar New Star, 308
- Profile of a Lunar Ridge, 555
- Rocket Observations of Ultraviolet Nebulae, 369
- Search for Bright Variable Stars, 73
- Shape of the Earth, 249
- Simulated Lunar Craters, 85
- Southern Observer of Variable Stars, 22
- Space Environment Symposium, 308
- Space Handbook*, 259
- Stars of Class R, 22
- Star Visibility by Day at High Altitudes, 435
- Struve, Otto, Appointed Director at Green Bank, 429
- Three New Supernovae, 604
- Transatlantic Radio Via the Moon, 676
- Ultraviolet Telescope in a Satellite, An, 437
- Upper-Air Flare, 676
- Variability of the Sun, 501
- Visiting Professor Program, 369
- Washington Appointment, 22
- Yamamoto, Issei, Dies, 264
- Zeta Aquarii, 195

Observer's Page—

- Amateur Photographs of Mars, 36
- Astrophotography Guide, 452
- Aurora of October 24th, 96
- Auroras in June and July, 569
- Cluster Messier 6, The, 574
- Comet Burnham-Slaughter, 153
- Deep-Sky Wonders, 35, 155, 210, 269, 332, 393 (correction, 503), 454, 630, 694
- Drawing the Moon's Surface, 450
- Early Observations of Mars, 30
- Earth's Shadow During Lunar Eclipses, 269; correction, 395
- Eclipse of the sun of October 2, 1959 — (see also under Titles): Checking Observing Sites for the October Eclipse, 269; Observations Wanted of Moon's Shadow, 628; Observing and Reporting Shadow Bands, 627; Sketching a Sunrise Eclipse, 391; Suggestions for October Eclipse Observations, 565

- Four Bright Comets of 1959, 686
- Geminid Meteor Photographs, 268
- January Auroras, 267
- January's Great Sunspot Group, 267
- July Auroras, 633
- Lunar and Planetary Photography with a 12½-inch Reflector, 510
- Lunar Domes, 91
- March Conjunction of Venus and the Moon, 396
- March's Fine Northern Lights, 394
- Mars Drawings Using Filters, 95
- May Aurora, 515
- Naked-Eye Method for Finding Venus by Day, A, 687
- New Bright Variable Star, 394
- Observations of the Perseids in August, 691
- Observing the Moon, Cassini, 515; Davy Y, 334; Gassendi, 206
- Peculiar Variable Star V Sagittae, The, 632
- Photographs of Venus, 268
- Photography of the Milky Way, 693
- Solar Halo Observed in Northeast, 512
- Some Observations of Mars from Iran, 209
- Sunset Phenomena, 573
- Sunspot Numbers, 35, 96, 156, 207, 268, 335, 393, 452, 516, 569, 633, 693
- Unusual Event in Alpetragius, An, 211
- Variable Star Observing Down Under, 395
- Variable Star U Coronae Borealis, The, 331
- Venus Passes Regulus in July Evening Sky, 610
- Wanted: Amateur Observations of CE Cassiopeiae, 152

Observing the Satellites—

- Another Artificial Planetoid, 320
- Bibliography, 146
- British Contributions, 146
- December Moon Shot, The, 145
- Discoverer I, 320
- Discoverer II, 444
- Discoverers V and VI, 675
- Electrical Power Sources for Satellites, 560
- Largest United States Artificial Satellite, 196
- Launching Site for Polar Orbits, 145
- Lunar Seismology, 616
- Man in Space, 260
- Measurements of the Earth, 378
- NASA Plans for Space Research, 28
- Observing a Polar Satellite, 260
- "Paddle-Wheel" Satellite, The, 673
- Photometric Observations of Satellite 195881, 83
- Project Mercury, 504
- Project Tepee, 675
- Recovery of 195881, 506
- Russian Space Probe in Orbit Around Sun, 197; More About "Mechta," 261
- Satellites Now in Orbit, 379
- Searching for the Lost Rocket of Vanguard I, 320
- Shorter Notes, 561
- Short-Lived Vanguard, A, 29
- Simplified Prediction Manual, 29
- Solar Effects on the Upper Atmosphere, 615
- Space Astronomy, 560
- Tumbling of 195881, The, 82; More About Project Rotor, 145
- Twelve Months of Optical Tracking, 28
- Van Allen Radiation Belt, 444
- Vanguard II, 319
- Venus Shots Planned for June, 378

Planetarium Notes, 264

Questions from the S + T Mailbag, 22, 88, 145, 189, 251, 321, 385, 439, 507, 554, 621, 665

Southern Stars, 116, 176, 292, 416, 536, 652

Stars for . . . (current month), 57, 117, 177, 233, 293, 357 (correction, 413), 417, 477, 537, 593, 653, 713

